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ABSTRACT

Designed to improve students' thirking, learning, and creative skills while they learn to program a microcomputer in BASIC programing language, this book for intermediate learners at the elementary school level provides a variety of microcomputer activities designed to extend the concepts learned in accompanying instructional manuals (Volumes 3 and 4). These activities require students to apply those concepts to challenging problems which need original and creative solutions. Each activity includes a program to enter, run, and observe, and a challenge requiring use of a previously taught principle. Suggestions for making changes in the program are often included. The titles of the individual activities are as follows: Custom Made; Trickery; The Right Key; Return to Sender; Author's Privilege; Immediate Math; Yellowness; Teammates; Lion Tamer; Keeping Busy; Career; Up, Up and Away; Ballooning; Random Number Generator; Little Yellow Math Helper; Squeeze; Label/List Maker; States; Game Changes-Yellow; Now You See It, Now You Don't; Character Building Exercises; Birthday Month; Toadily Dangerous; Greenness; Close Encounters; Toadily Educational; Age Gauge; How Long Ago; USA; Greatness; Ballot Maker; TLC Appearing Live; Vote Counter; Game Changes--Green; Game Maker--Green. (Author/LMM)

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THINKING · LEARNING · CREATING

TLC

MICROCOMPUTER PROJECTS

for Growing Minds

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Elementary Projects for Volume 3&4

IR011315

THINKING · LEARNING · CREATING

TLC

MICROCOMPUTER PROJECTS

for Growing Minds

Elementary Intermediate Microcomputer Projects

by Marilyn Buxton

on Resources

CREATIVE LEARNING ASSOCIATION, INC.
RR#4, Box 330
Charleston, Illinois 61920

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Custom Made

Some things fit and some don't. But you can make changes!

The programs in this book will fit most computers. You may have to make a few changes in some of them to make them work on your computer.

For example, for a TI, you will need to change some semicolons (;) to colons (:).

For an Atari, you will need to add DIMX$(N) before strings and DIMX(N) before numerical arrays.

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Each computer has a special way to handle random. At the lines indicated, add the random command for your computer.

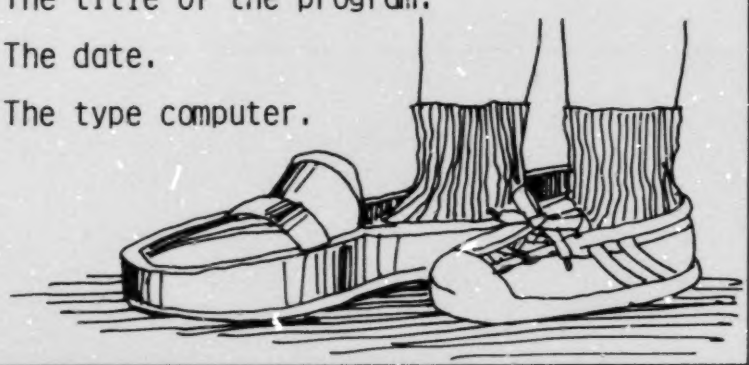
On some computers you may find another way to do the same thing.

For all computers and all programs, you will need to add your own creative ideas.

If you have a printer, get a printout of your list. Keep these in a notebook. They are your creations!

Start adding these things at the beginning of every program you save.

1. Your name or logo.
2. The title of the program.
3. The date.
4. The type computer.



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Try this:

```
10 PRINT "ENTER YOUR AGE";
20 INPUT A
30 PRINT "YOUR I.Q. IS";A
```

On many computers lines 10 and 20 can be put together with this shortcut. See if this works on your computer. (Delete line 20.)

```
10 INPUT "ENTER YOUR AGE";A
30 PRINT "YOUR I.Q. IS";A
```

Create a trick question by changing the print message. If your computer can put INPUT and PRINT together, use this shortcut in the program on the next page. If you are using a TI, change the semicolon in line 10 to a colon.

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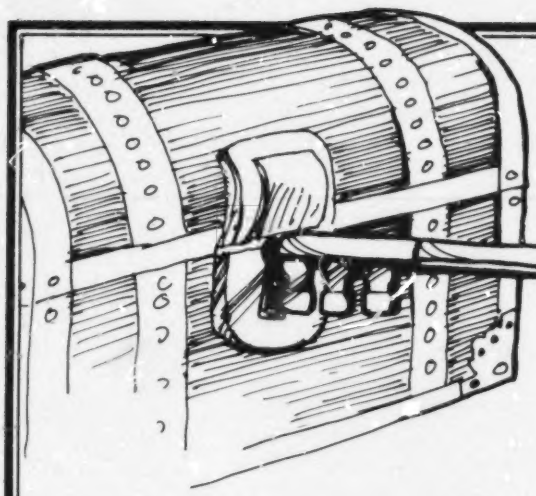

the Right Key

Good programmers add special touches to make good programs even better. Here is a program to improve.

If you are using a TI or Atari, edit this program so it will run.

```
10 PRINT "WHAT IS YOUR NAME?"
20 INPUT N$
30 PRINT "PRESS THE Y KEY"
40 INPUT A$
50 IF A$="Y" THEN 80
60 PRINT "PLEASE DO AS YOU ARE TOLD,";
N$;"!"
70 GOTO 30
80 PRINT "YOU WIN!"
```

(More on the next page)

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RUN, then LIST and figure out how this program works.

Then add:

```
100 PRINT "WHAT IS YOUR SECRET WISH?"
120 INPUT W$
130 PRINT N$;" GETS ";W$
```

Fix this program. Polish it up!

1. Have it clear the screen at the beginning and again before your wish is printed.
2. Have the name and wish appear in about the CENTER of the screen.
3. Use a different key as the right answer.
4. Make the wish look fancy.
5. If you can, add sound effects.
6. If you have color, use it to make your program more attractive.
7. Use your imagination!

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RETURN TO SENDER

Create a program that prints the rhyme below.

1. First complete the rhyme.
2. Add graphics to illustrate the rhyme.
3. Make something in your graphics move.
4. If you can, add colors, sound or voice.

Make this a masterpiece!

I called and ordered a swishy _____.

Instead they sent me a _____ _____.

So I sent it back with a note that said,

"_____".

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Author's Privilege

Add a command to clear the screen at line 10.

```
 10
 20 PRINT "SELECT MY AGE"
 22 PRINT "A.  OLDER THAN I LOOK"
 24 PRINT "B.  UNDER 25"
 26 PRINT "C.  OVER 25"
 30 INPUT A$
 40 PRINT:PRINT "SELECT MY SEX"
 42 PRINT "A.  MALE"
 44 PRINT "B.  FEMALE"
 46 PRINT "C.  ALIEN"
 50 INPUT S$
 60 PRINT:PRINT "DESCRIBE THE AUTHOR OF THIS
TEST"
 62 PRINT "A.  DULL"
 64 PRINT "B.  INDESCRIBABLE"
 66 PRINT "C.  WITTY"
 70 INPUT D$
 80 IF A$="A" THEN X=X+1
 90 IF S$="B" THEN X=X+1
100 IF D$="C" THEN X=X+1
110 PRINT "YOUR SCORE WAS";X
120 IF X=3 THEN 150
130 PRINT "YOUR I.Q. IS ALSO";X
140 END
150 PRINT "GREAT MIND YOU HAVE "
```

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If you are using a TI, use these lines instead of lines 80, 90 and 100.

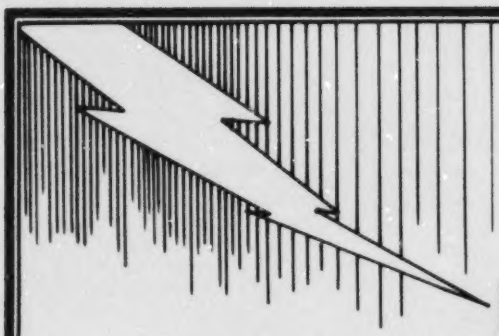
```
 80 IF A$="A" THEN 82 ELSE 90
 82 X=X+1
 90 IF S$="B" THEN 92 ELSE 100
 92 X=X+1
100 IF D$="C" THEN 102 ELSE 110
102 X=X+1
```

If you are using an Atari, add:

```
 15 DIM A$(5)
 17 DIM S$(5)
 19 DIM D$(5)
```

What a dumb test!

Change it to make four questions about your favorite tv show. At the end, print the score.



Immediate Math

Use your computer in the direct mode (no program or line numbers needed) to calculate some terribly important information.

First, enter these:

```
PRINT 2+4
```

and

```
PRINT 6*3
```

Now find these answers:

How many seconds in a day?

```
PRINT 60*60*24
```

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How many pennies to make one hundred dollars?

```
PRINT 100*100
```

If you watch TV two hours every day, how many hours is that a year?

Make up some problems of your own. Calculate the answers on your computer.

Create a program describing what would be your most difficult challenge if you had only yellow clothes. What would you do to solve your problem? Use graphics, color, sound, blinking, or poetry to make your program interesting. Save your program on tape or disk.

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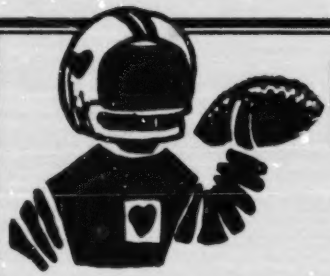

Teammates

For Atari, see the note on page 14.

```
 10
 20 PRINT "WHAT KIND OF TEAM?"
 30 PRINT "FOOTBALL OR FRIENDS"
 40 INPUT K$
 50 FOR A=1 TO 4
 60 PRINT "NAME A TEAM"
 70 INPUT T$(A)
 80 PRINT "WHERE ARE THEY LOCATED?"
 90 INPUT C$(A)
100 NEXT A
110
120 IF K$="FRIENDS" THEN 150
130 PRINT "NFL LINE-UP"
140 GOTO 160
150 PRINT "GREAT PARTNERS"
160 PRINT
170 PRINT "TEAM","PLACE"
180 PRINT
190 PRINT
200 FOR A=1 TO 4
210 PRINT T$(A),C$(A)
220 NEXT A
500 GOTO 500
```

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Add a clear screen command at 10 and 110.

Add the lines needed for your computer.

TRS-80

```
 10 CLEAR 100:CLS
162 FOR X=1 TO 127:SET(X,3):NEXT X
182 FOR X=1 TO 127:SET(X,9):NEXT X
```

APPLE

```
162 FOR X=1 TO 40:INVERSE:PRINT " ";:NEXT X:
NORMAL
182 FOR X=1 TO 40:INVERSE:PRINT " ";:NEXT X:
NORMAL
```

TI

```
162 CALL COLOR(13,14,10)
164 CALL CHAR(128,"FFFFFFFFFFFFFFFF")
166 CALL HCHAR(23,1,128,32)
182 CALL COLOR(13,14,10)
184 CALL CHAR(128,"FFFFFFFFFFFFFFFF")
186 CALL HCHAR(23,1,128,32)
```

IBM

```
162 FOR T=1 TO 80:PRINT CHR$(3);:NEXT T
182 FOR T=1 TO 80:PRINT CHR$(3);:NEXT T
```

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PET,VIC-20, C-64

```
105 PRINT "HOW MANY CHARACTERS ACROSS YOUR
SCREEN";C
107 INPUT C
162 FOR X=1 TO C:PRINT "■R    ";:NEXT X
164 PRINT
184 FOR X=1 TO C:PRINT "■R    ";:NEXT X
```

ATARI

If you have a printer, adapt this program. DIM all the string variables. Move lines 120 through 180 to follow after INPUT K$. Add L before each of those PRINTs. Eliminate all of the (A)'s. Eliminate lines 190 through 500.

Add:

```
 95 LPRINT T$,C$
```

Here's how my display looked:

GREAT PARTNERS

TEAM	PLACE
SNOOPY/C.B.	CARTOONS
SALT/PEPPER	TABLE
DWARFS	FOREST
POTATOES/GRAVY	TUMMY

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Lion Tamer

Use graphics and FOR, STEP, NEXT to create a program that shows this famous saying:

MARCH COMES IN LIKE A LION AND GOES OUT LIKE A LAMB.

Your display might look something like this:

MARCH 1 MARCH 31

LION LAMB

Or you may want to make the word LION march through the cage and then change to a lamb. Or you may want to use graphics to create a picture of a lion and lamb. Or you may want your program to roar and then baa-baa.

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Use this program to make a list for your Mom or Dad of all the things you want to do this month.

1. Add a command to clear the screen at line 10.
2. Add your own print statement at line 93.
3. If you are using a VIC-20 or TI, just list the activity, cost and time. Make changes so you will have three columns in your program.
4. Add CLEAR 1000 at line 5 on a TRS-80.
5. For ATARI, do the version on page 18.
6. If you have a printer, make the necessary changes after line 85 to get a printed copy of your list. Be sure when you are through to turn the printer off.
   If you don't have a printer, save your program on tape or disk.

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```
 10
 30 REM *** ASK FOR INFO ***
 40 FOR X=1 TO 5
 50 INPUT "ACTIVITY";A$(X)
 60 INPUT "COST";B$(X)
 70 INPUT "DATE";C$(X)
 72 INPUT "TIME";S$(X)
 74 INPUT "LOCATION";G$(X)
 80 NEXT X
 85 REM *** TURNS PRINTER ON ***
 93 PRINT "DALE'S ACTIVITY REQUEST FORM":PRINT
 95 PRINT "ACTIVITY","COST";"  ";"DATE","TIME",
 "LOCATION"
 97 REM *** PRINTS INFO IN 5 COLUMNS ***
100 FOR X=1 TO 5
110 PRINT A$(X),B$(X);"  ";C$(X),S$(X),G$(X)
115 NEXT X
120 REM *** TURNS OFF PRINTER ***
```

Here's how Dale's printout looked:

ACTIVITY	COST	DATE	TIME	LOCATION
FOOTBALL	$30	6/6-6/10	9	CHS GYM
BASKETBALL	$30	6/13-6/17	9	CHS GYM
FRD. OVER	$00	6/20	1	HOME
SWIMMING	$25	7/6-7/20	2	POOL
WATCH TV	$00	DAILY	7	HOME

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For Atari use this version:

```
  5 DIM A$(10)
 10 GRAPHICS 0
 15 PRINT "HOW MANY ACTIVITIES?"
 20 INPUT N
 25 GRAPHICS 0
 30 PRINT "DALE'S ACTIVITY REQUEST FORM"
 35 PRINT
 40 PRINT
 45 PRINT "ACTIVITY","DATE","TIME","LOCATION"
 50 FOR T=1 TO N
 60 FOR X=1 TO 4
 70 READ A$
 80 PRINT A$,
100 NEXT X
110 PRINT
120 NEXT T
150 REM ** ADD ENOUGH DATA **
200 DATA BBALL, 6/13-17, 9:00, HOME
210 DATA FOOTBALL, 6/6-10, 9:00, CHS GYM
220 DATA FRIEND, 6/20, 1:00, HOME
```

Career

By the time you are twenty-four, you may be working at a job that doesn't exist yet. Think about some of these questions.

What will doctors be doing then?

What will pilots be flying?

What forms of entertainment might be popular?

Who will guide tourists and travelers? Where will they go?

How will we send messages? Who will help?

What kind of things will need repairing? Who will do it?

What will we eat? How will it be grown? How served?

Will there be schools?

Now create a program that tells what your job at age 24 might be and shows something about it.

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up, up and away

ENTER/RUN/OBSERVE

Add a clear screen command at line 10.

```
10
20 PRINT "GO UP"
```

Be sure to RUN this program.

CHANGE IT/RUN/OBSERVE

Add this to PRINT a blank line.

```
40 PRINT
```

RUN and watch the screen. If you are using TI, you will see something happen. If you are using another brand computer, you may not see what is happening yet.

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CHANGE IT/RUN/OBSERVE

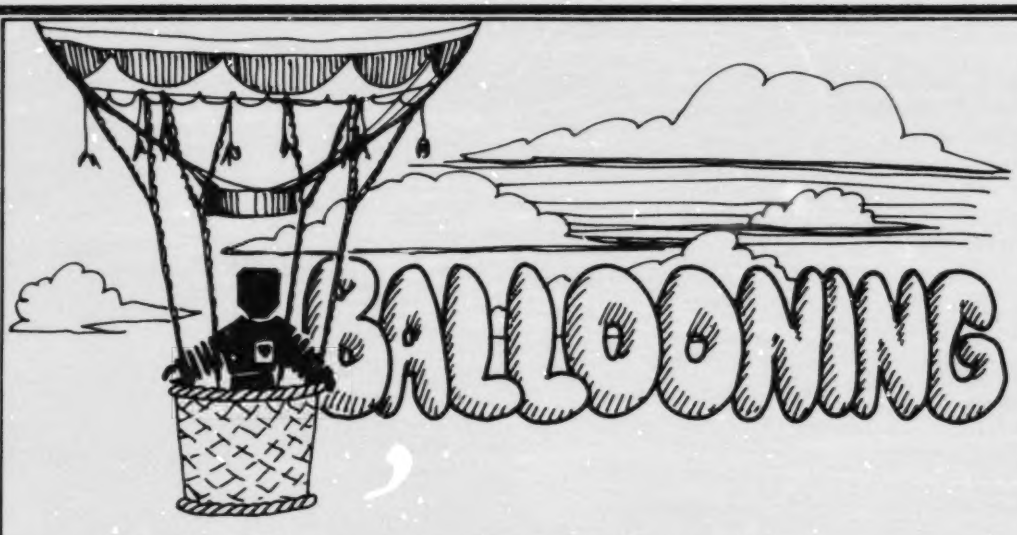
```
25 FOR U=1 TO 25
50 NEXT U
60 PRINT "GO UP HAS GONE UP"
```

LIST and try to figure out what causes the words to move up.

Change the number in line 25 until you figure out exactly how many blank lines must be printed to get the words GO UP off the screen.

CHANGE IT/RUN/OBSERVE

Add some lines to create a time delay that will make the words move up slowly.



Design and decorate a hot air balloon that can take you on a wonderful sky ride.

Launch it gently until it is out of sight.

Can you also make it come back down?

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Type in the lines for producing a random number (R) on your computer.

APPLE OR ATARI

```
20 R=RND(1)
```

TRS-80, PET, C-64, VIC-20

```
20 R=RND(0)
```

TI

```
 5 RANDOMIZE
20 R=RND
```

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IBM (when using basica)

```
  4 X=VAL(RIGHT$(TIME$,2))
  5 RANDOMIZE X
 20 R=RND
```

Now add this line:

```
 30 PRINT R
```

RUN several times. You should get a different number each time.

Now add:

```
 15 FOR N=1 TO 5
 45 NEXT N
```

RUN several times. You should get 5 different numbers. They should be different ones when you RUN again.

Delete lines 15, 30, and 45. LIST.

SAVE the RANDOM NUMBER lines to use again later.

+ ÷ × = − + ÷ ×

LITTLE YELLOW MATH HELPER

Add the Random Number Generator from the previous project for your computer.

```
 6 REM ** YOU CHOOSE A NUMBER **
 8 N=4
10 REM ** THE COMPUTER CHOOSES A RANDOM
NUMBER **
30 X=INT(R*10)
40 PRINT N;" TIMES ";X;" = ";N*X
```

Change the program so that:

1. The multiplication problem prints <u>without</u> the answer.
2. It waits for you to type in your answer.
3. It tells you "GREAT" if you are right.
4. It tells you the right answer if you missed it.
5. Line 8 allows you to INPUT a number.
6. It automatically lets you do ten problems without having to type RUN each time.

Save your program. Get a printout if you can.

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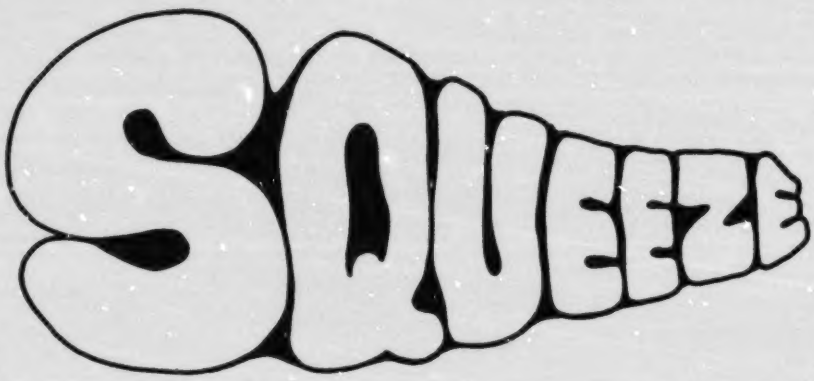

Select one of the programs you have created and saved. Load it. Find out how much memory is left.

Now see if you can combine lines, shorten PRINT statements, leave out some spaces, or use a different method so your program will use less memory.

Your program should cause exactly the same display when you RUN it.

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Label/List Maker

Add a command to clear the screen at line 10.

For TRS-80 add:

```
  2 CLEAR 1000
```

For Atari add DIM statements for all string variables.

```
  5 PRINT "HOW MANY LABELS?"
  6 INPUT N
 10
 20 INPUT "ENTER NAME";N$
 30 INPUT "ENTER ADDRESS";A$
 40 INPUT "ENTER CITY STATE";C$
```

(program continued)

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```
 50 INPUT "ENTER ZIP CODE";Z$
 55 REM **TURN PRINTER ON**
 60 PRINTN$
 62 PRINTA$
 64 PRINTC$
 66 PRINTZ$
 68 PRINT
 70 L=L+1
 80 IF L=N THEN 100
 90 GOTO 10
100 END
```

Add necessary commands to get a printout.
Use this program to make labels for your party invitations. . .

OR

Change the titles so you can enter the names, position, and phone numbers of your team and print out a list. . .

OR

Use it to print a list of famous musicians, their musical instruments and big hit songs.

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States

Create a program that stores capital cities in an array and states in another array.

Have it:

1. Randomly select a state.
2. Wait for a city to be entered.
3. Tell you if you have entered the right capital city for that state.

Get it to work for three states. SAVE THIS!

Consider the problems you would have if you want this program to work for all fifty states.

If you are using an Atari, use DATA and READ instead of arrays to solve this challenge.

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game changes *yellow*

Load a game program you like that is written in BASIC. LIST it. Find some places where IF-THEN is used. Change one of them to improve the game. Add an INPUT statement so that the computer will address you by your name somewhere in the program.

Now play your version of the game.

SAVE IT ON TAPE OR DISK!

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STOP!

If you have finished all the YELLOW projects, pat yourself on the back. You've done a good job!

NOW!

Before starting on the GREEN projects, you'll need to learn some new commands from Volume 4 of TLC FOR GROWING MINDS. When you have finished Volume 4, come back and sharpen your skills with the GREEN projects.

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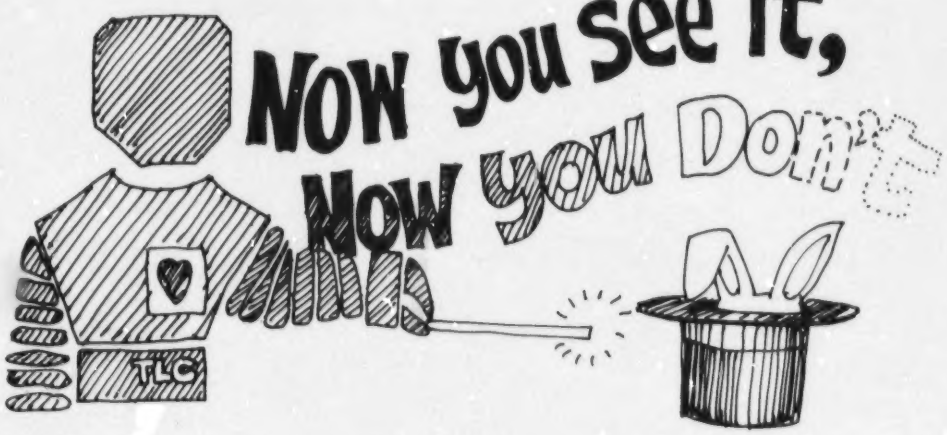

Many games have an object appear for awhile then disappear.

Use CHR$(X) to place an interesting character at a randomly selected spot.

1. Have the computer print on the screen a countdown from 10 to 1 that takes ten seconds.
2. After it prints 1, the character should disappear.
3. If your computer has color, use it in your program.

Save this program to use later.

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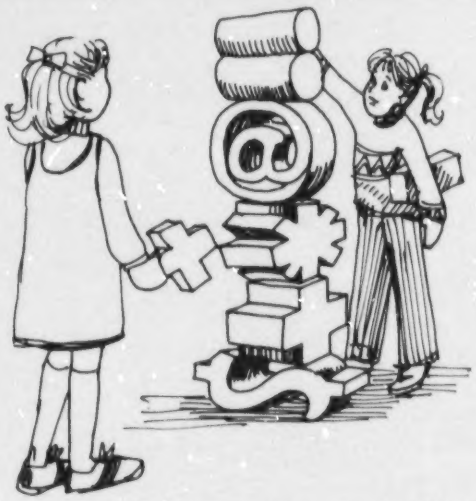

Character Building

Start with your handy little Random Number Generator program.

Add this to multiply by 100:

```
100 X=R*100
200 PRINT X
```

RUN and observe the results several times.

Make this change to create an integer (whole number without the decimals):

```
100 X=INT(R*100)
```

RUN several times and observe.

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Make this change to see the character for the number you create:

```
200 PRINT CHR$(X)
```

RUN. Then LIST and see if you understand the program so far. RUN again several times.

Make this addition by editing to eliminate the smaller numbers that cause blanks to appear.

```
100 X=INT(R*100)+32
```

Add:

```
180 FOR A=1 TO 8
210 NEXT A
```

RUN several times.

Make this change by editing:

```
200 PRINT CHR$(X);
```

RUN several times.

Add:

```
170 FOR B=1 TO 10
220 NEXT B
```

RUN several times.

Add a clear screen command at line 150.

RUN again.

Add this:

```
215 PRINT
```

RUN again. LIST and see if you understand what is happening.

Make this change by editing:

```
200 PRINT CHR$(X);"  ";
```

LIST.

First should be your Random Number Generator.

Turn the page to see how the rest of your program should look.

```
100 X=INT(R*100)+32
150
170 FOR B=1 TO 10
180 FOR A=1 TO 8
200 PRINT CHR$(X);" ";
210 NEXT A
215 PRINT
220 NEXT B
```

Add one or more of these to your program:

a. Print the characters in color. (Can your computer select color randomly?)

b. Print every other row in reverse or inverse.

c. Create a sound after every row prints.

d. Put more spaces between rows.

e. Put more spaces between characters.

f. Repeat until you have seen 5 different character designs. Add time delays and clear screen commands as needed.

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Birthday Month

Create a graphics program that shows something special about the month you were born.

Use graphics, color, sound, speech, or any other special things you can make your computer do.

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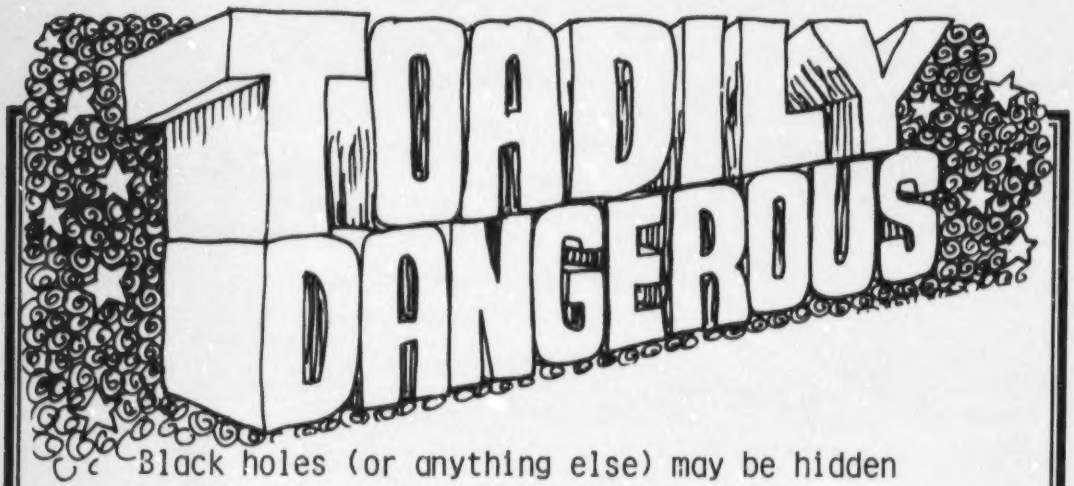

Black holes (or anything else) may be hidden at secret locations. Start with a clear screen command at lines 10 and 190.

Add your Random Number Generator.

```
 10
 15 REM **RANDOM NUMBER GENERATOR**
 20
 50 REM **CHOOSE RANDOM LOCATION (X)**
 60 X=INT(R*255)
 70 REM **PRINT CHARACTER AT RANDOM
 LOCATION**
 80 PRINT TAB(X);CHR$(60)
 90 FOR T=1 TO 25
100 NEXT T
110 REM **CHECK IF LOCATION IS 87**
120 IF X=87 THEN 190
130 REM **COUNT ONE MORE MOVE**
140 S=S+1
150 REM **KEEP SHIP FLYING**
180 GOTO 10
190
```

(program continued)

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```
200 PRINT "PREPARE FOR DISASTER!"
210 PRINT "YOU HAVE HIT THE BLACK HOLE!"
220 PRINT "YOUR SCORE IS";S
```

For Atari make these changes:

```
 25 W=RND(1)
 60 X=INT(R*38)
 65 Y=INT(W*24)
 80 POSITION X,Y
 85 PRINT CHR$(60);
105 POSITION X,Y
106 PRINT " ";
110 REM **CHECK IF LOCATION IS 27**
120 IF X=27 THEN 190
180 GOTO 20
210 PRINT "YOUR HAVE HIT THE BLACK TRENCH!"
```

(More on next page)

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NOW TAKE COMMAND!

1. Change the shape of your ship.
2. Add other black holes at locations 152 and 201.
3. Make other changes to improve this program.
4. Keep a list of your scores. Keep a list of a friend's scores.
5. Use the immediate math mode to add up all of your scores.
6. SAVE THIS PROGRAM ON TAPE OR DISK!

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Create a program that tells how you could be useful if you grew up to be green.

You may create a short story or rhyme.
Add illustrations.

Suggestion: Think of as many green things as you can before you start your program. Now use your imagination.

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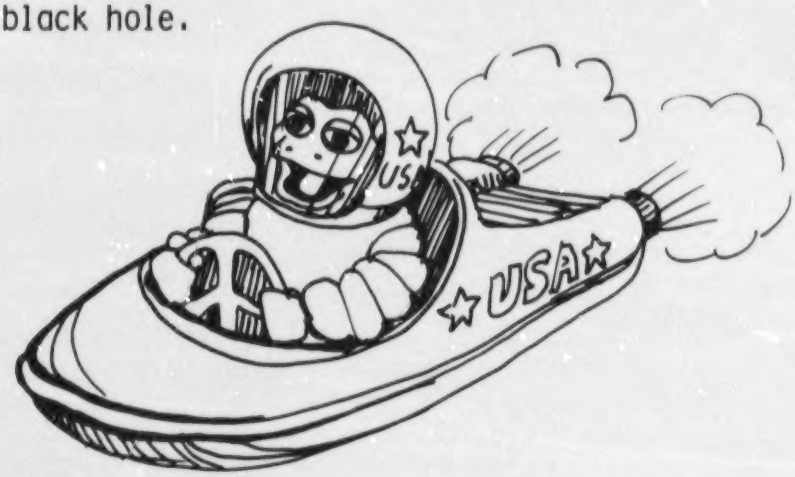
CLOSE ENCOUNTERS

Load the black hole program called TOADILY DANGEROUS.

Add a line to check when your ship has blinked at 150 locations. If it has, have the computer go to a line that says you are a lucky pilot to have completed your mission without hitting a black hole.



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Toadily Educational

Add the command to clear the screen at lines 10, 1010, 1050, 2010, and 2050. Remember to DIM all strings if you are using an ATARI.

```
10
20 DATA WHO SAYS IT ISN'T EASY BEING
GREEN?,KERMIT
22 DATA WHO SHOULD KISS A FROG THAT WANTS
TO BECOME A PRINCE?,PRINCESS
24 DATA IN WHICH BOOK CAN YOU FIND MR.FROG
AND MR. TOAD?,WIND IN THE WILLOWS
26 DATA TOUCHING THIS ANIMAL WILL NOT CAUSE
WARTS,FROG
28 DATA WHAT VIDEO GAME IS NAMED AFTER AN
AMPHIBIAN?,FROGGER
30 DATA WHAT'S BROWN AND WHITE AND GREEN ALL
INNER?,FROG SANDWICH
40 FOR Q=1 TO 6
50 READ A$,B$
60 PRINT A$
70 INPUT Z$
(program continued)
```

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```
 80 REM **CHECK ANSWER**
 90 IF Z$ = B$ THEN 110
100 X = 2
105 GOTO 120
110 X = 1
120 ON X GOSUB 1000, 2000
130 NEXT Q
140 END
1000 REM **RIGHT**
1010
1020 PRINT "3 CHEERS!  RIBET!  RIBET!  RIBET!"
1030 FOR T = 1 TO 500
1040 NEXT T
1050
1060 RETURN
2000 REM **WRONG**
2010
2020 PRINT "TOADILY UNACCEPTABLE"
2030 FOR T = 1 TO 500
2040 NEXT T
2050
2060 RETURN
```

Add two more questions to this quiz.

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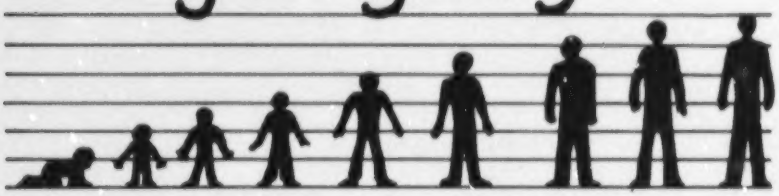
age gauge



```
10 INPUT "WHAT IS YOUR AGE";A
20 INPUT "WHAT YEAR IS THIS";Y
30 REM ** B IS YOUR BIRTH YEAR **
40 B=Y-A
50 PRINT "YOU WERE BORN IN";B
```

RUN.

Add this:

```
60 INPUT "WHAT FUTURE YEAR DO YOU WANT?";F
70 PRINT "YOU WILL BE";F-B
80 PRINT "IN THE YEAR";F
```

1. Try running this program several times.
2. How old will you be in the year 2000?
3. What happens if you want the year 1980?
4. Fix this program so it will do something sensible if a year already past is entered.
5. Be sure it also works for years before you were born! Try it for 1900.
6. If you are using TI or Atari, make changes so this will run.

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Create a program that will let you:

1. Enter the current year.
2. Enter a famous historical year.
3. Enter the name of the historical event.

Then the program should calculate how long ago that was. Get this much of your program to work. Now add to it using DATA and READ statements so that you can include five events and dates. Then display on the screen the events, dates, and how long ago that was.

If you have a printer, add the lines necessary to get a printout of your program.

Save the program on tape or disk. Use it to make a study sheet for a history test.

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Load the States program you created from the challenge called States.

Using DATA and READ, change the program so it will work for all 50 states and their capital cities.

Use a geography book, atlas, or map to be sure you have the right capital city for each state.

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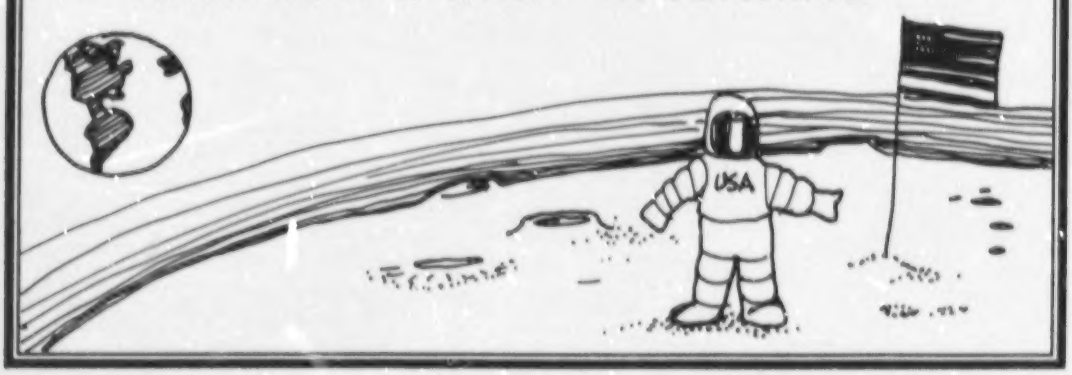
Greatness

Create a program that will create a review quiz about <u>one</u> of these:

a. Early explorers in North America.
b. American space exploration pioneers.
c. Famous scientists.
d. Famous American women.

Use sound, color, graphics, or whatever else you can to make your program interesting when a correct answer is chosen. Use subroutines.



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Add clear screen commands at lines 10 and 9020.
If you have an ATARI, change this program using DATA and READ.

Use this program to make ballots for an election. If you have a printer, add the necessary commands to print the number of ballots you need. Try it for one or two to make sure it works. Then print enough for all the voters in your class.

Here's what my ballot looked like:

BALLOT

1 GARFIELD
2 SMOKY THE BEAR
3 AN ALIEN
4 WONDER WOMAN
5 TLC

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```
  10
  20 PRINT "WHO ARE THE 5 CANDIDATES FOR
  CLASS MASCOT?"
  30 FOR X = 1 TO 5
  40 INPUT C$(X)
  50 NEXT X
  60 PRINT "HOW MANY VOTERS?"
  70 INPUT N
  80 FOR A = 1 TO N
  90 GOSUB 9000
 100 NEXT A
 110 END
9000 REM **PRINT BALLOT**
9010 FOR B = 1 TO N
9020
9030 PRINT "                              BALLOT"
9040 FOR X = 1 TO 5
9050 PRINT X;C$(X)
9060 NEXT X
9070 PRINT
9080 NEXT B
```

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Use graphics to show TLC. Make him move in one or more of the following ways:

1. Smile 2. Wave 3. Dance

If your computer has color, sound, or speech, add these to your program.

Send me a copy of your working program on tape or disk. Be sure it is labeled with:

1. Your name, address and phone number.
2. The title of this challenge.
3. The date.
4. The type computer you used to create it.

I will send you a blank tape or disk and a surprise. Send your program to: Marilyn Buxton, Creative Learning Association, R.R. #4, Box 330, Charleston, IL. 61920.

Offer expires December 31, 1985.

VOTE COUNTER

Load the Ballot Maker program. (If you don't have it, type in the program below.)

Clear screen commands go at lines 10, 6010, and 9020.

Add lines 80 through 8020.

Remove line 9010.

Change line 9080.

Hold a class election on the computer and get an immediate vote count.

If you are using an ATARI make necessary changes.

```
10
20 PRINT "WHO ARE THE 5 CANDIDATES FOR CLASS
MASCOT?"
30 FOR X = 1 TO 5
40 INPUT C$(X)
50 NEXT X
60 PRINT "HOW MANY VOTERS?"
70 INPUT N
80 FOR V = 1 TO N
```

(program continued)

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```
 90 GOSUB 9000
 95 PRINT "WHAT IS YOUR NAME?"
100 INPUT N$
110 PRINT "ENTER THE NUMBER OF THE CANDIDATE
YOU WANT TO VOTE FOR"
120 INPUT M
130 IF M<1 OR M>5 THEN 8000
140 ON M GOSUB 1000, 2000, 3000, 4000, 5000
150 NEXT V
160 GOTO 6000
1000 REM **ADD VOTE TO CORRECT CANDIDATE**
1010 A = A + 1
1500 RETURN
2000 B = B + 1
2500 RETURN
3000 C = C + 1
3500 RETURN
4000 D = D + 1
4500 RETURN
5000 E = E + 1
5500 RETURN
6000 REM **RESULTS**
6010
6020 PRINT "CANDIDATE","VOTES"
```

(program continued)

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```
6030 PRINT C$(1),A
6040 PRINT C$(2),B
6050 PRINT C$(3),C
6060 PRINT C$(4),D
6070 PRINT C$(5),E
7000 END
8000 REM **WRONG NUMBER SUBROUTINE**
8010 PRINT "YOU MUST PICK A NUMBER BETWEEN
1 AND 5"
8020 GOTO 110
9000 REM **PRINT BALLOT**
9020
9030 PRINT "                                BALLOT"
9040 FOR X = 1 TO 5
9050 PRINT X;C$(X)
9060 NEXT X
9070 PRINT
9080 RETURN
```

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GAME-MAKER Green

Load a game program (written in BASIC) which you think is kind of boring. Change the program to make it more interesting. Here are some suggestions:

1. Add or improve graphics.
2. Speed it up.
3. Make it possible for two people to play.
4. Improve the scoring.
5. Add some jokes in the PRINT statements.
6. Make it shorter.
7. Make it longer.
8. If your computer handles sound or color, add these to the game.

Be sure to put your name design at the beginning as the person who revised and improved the game. (Someone else is the author.) Be sure to save the new version on tape or disk. Now play your version. Try it out on two friends.

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game changes *green*

Use the skills you have learned to create a simple game.

Get each part working. Then add the next part.

These projects may give you some ideas:

page 4 . . THE RIGHT KEY
page 7 . . AUTHOR'S PRIVILEGE
page 20 . . UP, UP AND AWAY
page 25 . . LITTLE YELLOW MATH HELPER
page 31 . . NOW YOU SEE IT, NOW YOU DON'T
page 37 . . TOADILY DANGEROUS
page 41 . . CLOSE ENCOUNTERS
page 42 . . TOADILY EDUCATIONAL
page 45 . . HOW LONG AGO
page 46 . . USA
page 54 . . GAME CHANGES-GREEN

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CONGRATULATIONS!

You have completed the INTERMEDIATE SERIES OF TLC FOR GROWING MINDS.

INTERMEDIATE SERIES

TLC FOR GROWING MINDS VOLUME 3 (YELLOW)

TLC FOR GROWING MINDS VOLUME 4 (GREEN)

TLC PROJECTS FOR GROWING MINDS VOLUME 3 & 4 (YELLOW & GREEN)

You are no longer an intermediate! You are now ready for the TLC ADVANCED SERIES which consists of:

ADVANCED SERIES

TLC FOR GROWING MINDS VOLUME 5 (BLUE)

TLC FOR GROWING MINDS VOLUME 6 (INDIGO)

TLC PROJECTS FOR GROWING MINDS VOLUME 5 & 6 (BLUE & INDIGO)

You will also learn some new ways to use the commands if you work the JUNIOR HIGH VERSION of the INTERMEDIATE PROJECT BOOK.

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